

REMARKS

This Amendment and Response is filed in reply to the final Office action dated April 18, 2007. Claims 1, 3, 5, 19, 31, 46, 59, 63, 65-66 and 68 are amended, claim 67 is canceled and claims 2, 4, 32-36, 39-45, 48 and 55-58 were previously cancelled. Accordingly, after entry of this Amendment and Response, claims 1, 3, 5-31, 37-38, 46-47, 49-54, 59-66 and 68-69 remain pending.

I. Objections to the Specification

The specification is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. The Assignee respectfully disagrees. The specification, as previously amended, does not contain a hyperlink or other form of browser-executable code such as a URL placed between the symbols "<>" or http:// followed by a URL address. See *MPEP* § 608.01(VII). The Assignee respectfully requests that the objection to the specification be withdrawn.

II. Claim Rejections Under 35 U.S.C. § 112

Claims 3, 31, 46-47, 49, 60 and 62-69 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, in our last response claims 1, 19 and 59 were amended to include the limitation of "backtracking a displacement within an unambiguous skid region." The Office action alleges that the backtracking occurs within unambiguous skid region that does not contain an ambiguity creating location. However, claims 3, 31, 60 and 63-69, which depend from one of these claims, recite the limitation of an ambiguity creating location. The Office action alleges that the specification does not have any disclosure describing an unambiguous skid region containing an ambiguity creating location. See *Office action*, page 3. Without admitting to any deficiency in the specification or claims, we have elected to clarify claims 1, 19 and 56 to remove "within an unambiguous skid region" from the backtracking limitation.

Claim 46 was amended in our last response to recite the limitation of "classifying the execution event as ambiguous or unambiguous." The Office action alleges that the specification has no disclosure of classifying an event as ambiguous or unambiguous. See *Id.* The Assignee respectfully submits that an execution event may be classified as unambiguous when the backtracking does not encounter an ambiguity creating location, and as ambiguous when an ambiguity creating location is encountered during the backtracking. That is, the presence or absence of execution path ambiguity while backtracking determines whether or not the execution event is ambiguous. See *Specification*, paragraphs 22-23. Claims 47 and 49, which depend from claim 46, suffer the same deficiency.

Nonetheless, claim 46 is amended to recite the limitation "classifying the execution event as associated with one or more of the ambiguity creating locations or not associated with one or more of the ambiguity creating locations." Support for this claim amendment may be found at least at paragraph 22 and Fig. 2 of the specification. It is respectfully submitted that claims 3, 31, 46-47, 49, 60 and 62-69 are now in compliance with 35 U.S.C. § 112, first paragraph, and such indication is respectfully requested.

Claims 1, 3, 5-31, 37-38, 59-60 and 62-69 are rejected under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The claims, as amended, particularly point out and distinctly claim the subject matter which the applicant regards as his invention. While the Office action alleges a narrow purpose for the invention, the purpose of the invention is broader than this narrow interpretation, as set forth in the claims.

III. Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3, 5-15, 19-31, 37-38, 46-47, 49, 59-60 and 62 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,964,867 to Anderson et al. (hereinafter "Anderson"). An anticipation rejection requires that each and every limitation of a claim be disclosed in a single prior art reference.

Initially, the rejection of independent claims 1, 19, 46 and 59 is addressed. Claim 1 includes a limitation "identifying an ambiguity creating location in the code, the ambiguity creating location being an operation reachable from a plurality of program execution paths." Claims 19, 46 and 59 include a similar limitation. The Office action alleges that Anderson teaches this by stating the analysis can identify execution paths. See *Office action*, page 13. The Assignee respectfully disagrees. In Anderson, when a branch instruction is encountered, branch history bits are used to try and resolve whether or not the branch was taken (see *Anderson*, column 24, lines 15-31), rather than identifying an ambiguity creating location as required by the independent claims 1, 19 and 46. Further, independent claims 1 and 19 are amended to include a limitation "determining that the ambiguity creating location is not encountered while backtracking." Claim 59, as amended, includes a similar limitation. It is respectfully submitted that Anderson does not teach such a limitation.

Independent claim 46, as amended, includes the limitation "classifying the execution event as associated with one or more of the ambiguity creating locations or not associated with one or more of the ambiguity creating locations." It is respectfully submitted that Anderson does not teach such a limitation.

Insofar as Anderson does not teach all of the limitations of independent claims 1, 19, 46 and 59, it cannot anticipate them. Therefore, it is respectfully submitted that independent claims 1, 19, 46 and 59 are patentable over Anderson, believed to be in form for allowance,

and such indication is respectfully requested. The remaining claims 3, 5-15, 20-31, 37-38, 47, 49, 60 and 62 all depend, either directly or indirectly, from one of independent claims 1, 19, 46 and 59. Accordingly, these dependent claims are themselves patentable over Anderson for at least the reasons set forth above and such indication is respectfully requested. This statement is made without reference to or waiving the independent bases of patentability within each dependent claim.

IV. Claim Rejections Under 35 U.S.C. § 103

Claims 16-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson in view of U.S. Patent Publication No. 2002/0010913 to Ronstrom (hereinafter "Ronstrom"). Claims 63-68 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson in view of V. Bala and N. Rubin, "Efficient Instruction Scheduling Using Finite State Automata," *Proceedings of MICRO-28*, IEEE 1995, pp. 46-56 (hereinafter "Bala"). Claims 50-54 and 61 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ronstrom in view of Bala.

A. Rejection of Claims 16-18

Claims 16-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson in view of Ronstrom. This rejection is respectfully traversed. Claims 16-18 depend from independent claim 1. As discussed above, claim 1 is patentable over Anderson. Further, the Office action only relies upon Ronstrom to teach a compiler that generates dummy instruction code for lowering cache miss penalty and inserting the same. See *Office action*, page 15. As such, Ronstrom is insufficient to remedy the deficiency of Anderson regarding identifying an ambiguity creating location, as required by amended claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

B. Rejection of Claims 63-68

Claims 63-68 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson in view of Bala. Claims 63-68 depend from one of independent claims 1 and 19. As discussed above, claims 1 and 19 are patentable over Anderson. The Office action relies on Bala to teach identifying an ambiguity creating location. See *Office action*, page 17. The Assignee respectfully disagrees that Bala teaches such a limitation. Bala teaches insertion of instructions to prevent a structural hazard. See *Bala*, Introduction Section, first paragraph. Bala also teaches placement of compensation code that gets generated when an instruction is speculatively executed above a branch upon which it is control dependent. See *Bala*, Introduction Section, paragraph nine. However, Bala fails to teach identifying ambiguity creating locations which are those instructions which may be reached from a plurality of code execution paths as required by independent claims 1 and 19. Therefore, the Assignee respectfully submits that independent claims 1 and 19 are patentable over Anderson in view

of Bala and such indication is respectfully requested. Rejected claims 63-68 depend from, either directly or indirectly, from one of independent claims 1 and 19. Accordingly, these dependent claims are themselves patentable over Anderson in view of Bala for at least the reasons set forth and such indication is respectfully requested.

C. Rejection of Claims 50-54 and 61

Claims 50-54 and 61 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ronstrom in view of Bala. The Assignee respectfully traverses this rejection. Initially, the rejection of independent claims 50 and 61 is addressed.

The Examiner asserts that a branch is an ambiguity creating location. See *Office action*, page 23. The Assignee respectfully disagrees. An ambiguity creating location is a location reachable from a plurality of program execution paths. As discussed above, Bala does not contemplate ambiguity creating locations. Further, Ronstrom is insufficient to remedy the deficiency of Bala. Therefore, the Assignee respectfully submits that independent claims 50 and 61 are patentable over Ronstrom in view of Bala and such indication is respectfully requested. The remaining rejected claims 51-54 all depend, either directly or indirectly, from independent claim 50. Accordingly, these dependent claims are themselves patentable over Ronstrom in view of Bala for at least the reasons set forth above and such indication is respectfully requested.

V. Conclusion

The Applicant thanks the Examiner for his thorough review of the application. The Applicant respectfully submits the present application, as amended, is in condition for allowance and respectfully requests the Issuance of a Notice of Allowability as soon as practicable.

This Amendment is submitted contemporaneously with a Request for Continued Examination and a petition for a one-month extension of time in accordance with 37 C.F.R. § 1.136(a). Accordingly, please charge Deposit Account No. 04-1415 in the amount of \$910.00 (\$790.00 for the Request for Continued Examination fee and \$120.00 for a one-month extension of time fee). The Applicant believes no further fees or petitions are required. However, if any such petitions or fees are necessary, please consider this a request therefor and authorization to charge Deposit Account No. 04-1415 accordingly.

If the Examiner should require any additional information or amendment, please contact the undersigned attorney.

Dated: August 20, 2007

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gregory P. Durbin", written over a horizontal line.

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